



#6

# SEQUENCE LISTING

<110> Gould-Rothberg, Bonnie E.  
DiPippo, Vincent A.  
Ramseh, Tennore M.  
Gerwein, Robert W.

<120> METHOD OF IDENTIFYING TOXIC AGENTS USING NSAID-INDUCED  
DIFFERENTIAL GENE EXPRESSION IN LIVER

<130> 15966-601 Utility

<140> 09/717,321

<141> 2000-11-20

<150> 60/166,923

<151> 1999-11-22

<160> 50

<170> PatentIn Ver. 2.1

<210> 1

<211> 123

<212> DNA

<213> Rattus norvegicus

<400> 1

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acc 123

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<212> DNA

<213> Rattus norvegicus

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aaacactcca caattctgca actgtcaatt gaaaaaagtt tggtctagtg gtcgaaaggc 180  
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tactatctac caaaaaaatc tccgaatgca ttatcagaaa gatcttatag tacaggtcag 540

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<210> 3
<211> 484
<212> DNA
<213> Rattus norvegicus

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<220>
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<222> (455)
<223> Wherein n is g or a or t or c

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cagcagccca gtaagctgtg ccagaaggct gtaacagtag cggagccagt gacagcgcca 180
ggctgggctg ggttctctct gtgggtgtgc acggcaaagc tgcggcctgt gggccctggg 240
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ttggagtttc ggggggcca ggggcagagc ccacgcacag ggcctcata gagcactgtg 420
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<210> 4
<211> 650
<212> DNA
<213> Rattus norvegicus

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cagcagccca gtaagctgtg ccagaaggct gtaacagtag cggagccagt gacagcgcca 180
ggctgggctg ggttctctct gtgggtgtgc acggcaaagc tgcggcctgt gggccctggg 240
gggcctgtca gctccacatc caccacatgc atgtcgggtga ggctaagggtc agccacaagc 300

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accccaatga cacgatcaaa gcctagactg ggagcggcca gggcagcggc tgccatggtg 360
ttggagtttc ggggggcca ggggcagagc ccacgcacag ggccctcata gagcactgtg 420
cggggccac tactatgtgc ggcagccagg ggtccctcca gccggaagcc atcaggatgt 480
gtggccatgg tgactcgaag gctctggagg cctccggctg catccaatct gctgatgtct 540
tcacaacccc acagggcccc tcgggccaca aacaccgtgt ggccccagt gtttgaagcc 600
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<210> 5

<211> 256

<212> DNA

<213> Rattus norvegicus

<400> 5

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agaagggcat gctccagctc ctgcaggaca aggattcctg cagctggctc ctgaaggaaa 180
agagtgcac cagtgcagaag aggagattcc tgaaggagcg gttggcaagg ctggcccaag 240
ctcagcgcag gctagc 256

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<210> 6

<211> 369

<212> DNA

<213> Rattus norvegicus

<400> 6

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ccacacagct gggaccaggc cgcttccaaa tgaccagga agtggtttgt gacgagtgc 180
ctaagtcaa actagtgaat gaagaacgaa cactagaagt ggaaatagag cctggggtga 240
gagatggcat ggagtacccc tttattggag aaggtgagcc tcatgtggat ggggaacccg 300
gagacttacg gttccgaatc aaagtgtca agcaccgat atttgagagg agaggggatg 360
acctgtaca 369

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<210> 7

<211> 167

<212> DNA

<213> Rattus norvegicus

<400> 7

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ctggttttac aaggcataaa tatatagcat ctccaacagc tacctgtaga ttctgttagt 120
gcaaacctt agaaaccctc ctggagctca aaggcatccg gactagt 167

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<210> 8

<211> 594  
 <212> DNA  
 <213> Rattus norvegicus

<400> 8  
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 gcacttataa aattagtact gaatgccatt atgacagaag tgagcatcat ccacactccc 120  
 aagagcatct gcaaaggaaa tcaatcttca gagaatagca cagaaacaga aaatccaagc 180  
 gaacaaaaag atacatctag gccgtgttct tggtctgacc agggccgcat ttggcaaagc 240  
 tttctctgca cctcccctgg ttgccaagga tactttcttt tgttaaaaaa aaaagtttag 300  
 aagtggggcc ccactaaaac atacacaaaa gaataaaaat gttcatttta aacttaaaact 360  
 gcttcctggg tttaacaaggc ataaatatat agcatctcca acagctacct gtagattctg 420  
 ttagtgcaaa accttagaaa cctcctggga gctcaaaggc atccggacta gttttgtact 480  
 taaacaggat acgggtaaac cacttaaaat ttgccatctc tgcccaaagt gtttgcatga 540  
 gaactgagtt tcagaagaca gcataggaaa gagtcagaaa cgggtcaactt tttt 594

<210> 9  
 <211> 340  
 <212> DNA  
 <213> Rattus norvegicus

<400> 9  
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 ggtgagactc tggcttccgg ctggtagaag ccaagggttg acgcatagtt gcaaagctcc 180  
 tccttcaggc acaaagtgtc tatgcttcta atagaacagc agctcccgtg tcctggctga 240  
 ccggagcaca caggctgagc gtgccacagc gacgacggag gccaaagcgtg gtgctgggtg 300  
 tggtactttc ccgtgagttc cagcaccttc ttcaccatgg 340

<210> 10  
 <211> 797  
 <212> DNA  
 <213> Rattus norvegicus

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 cgaagacttg gagcctaaat ggttttcttc ttttagagct ttagtaccg atccatcaga 180  
 cctaggactg cacaacgtga gtccttgaac caggctctgg aaaaggtgcc cagaccaccc 240  
 aatggggaca cacagtgagg ccagcccccga gtgaaattcc tgctgctacc tggggccctt 300  
 ggtgagactc tggcttccgg ctggtagaag ccaagggttg acgcatagtt gcaaagctcc 360  
 tccttcaggc acaaagtgtc tatgcttcta atagaacagc agctcccgtg tcctggctga 420  
 ccggagcaca caggctgagc gtgccacagc gacgacggag gccaaagcgtg gtgctgggtg 480  
 tggtactttc ccgtgagttc cagcaccttc ttcaccatgg ccccaatccc gtcgtggatg 540  
 tgggtggagtt cggctctaca catgaaggcc ggggtgggtga ccaccttggt tttctggctg 600  
 acgtgagctt cggtcacacc cttcacacag tgcttggcac ccagggtttt gacggcttcc 660

gcggttccag catatggcca cttgcccccc tcctcttgct catggcccac ggtgacctcc 720  
acacctttga tcactttggc tgcgaggaca ggagcgatgc agcataggcc aatgggcttc 780  
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<210> 11  
<211> 782  
<212> DNA  
<213> Rattus norvegicus

<220>  
<221> misc\_feature  
<222> (545)  
<223> Wherein n is g or a or t or c

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gggatgtttt cccaccaagg gcaacatgca aagccaggta tccacatggg tagagtagaa 240  
agtcagacct tacatctcac acacaaatga actcaaaata taccagagag caaagctaag 300  
agctaaaatc aagtttccta gggcaagctg tagtaggctc ccttgggtgg gttaatgctt 360  
ttgtggatgt gactaccaa aattcaacca gagccaacga cccaactatt aatgggcagt 420  
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tgacatcagt agtcagagag atgggaagca gaagcactag cagatcttaa cacctactag 540  
aacanccact aaaaaagagt aagactcaca aggacatggg cacttctaata ctctgtgcac 600  
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cc 782

<210> 12  
<211> 1025  
<212> DNA  
<213> Rattus norvegicus

<400> 12  
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gggatgtttt cccaccaagg gcaacatgca aagccaggta tccacatggg tagagtagaa 240  
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agctaaaatc aagtttccta gggcaagctg tagtaggctc ccttgggtgg gttaatgctt 360  
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ggacctaaag agatttcttc aaacgatata taaagaaggc caccaagcat ataaaacatg 480  
tgacatcagt agtcagagag atgggaagca gaagcactag cagatcttaa cacctactag 540  
aacagccact aaaaaagagt aagactcaca aggacatggg cacttctaata ctctgtgcac 600

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tgctgccagg acatacaata gtgtgggtcac tatggagact acggcagtgc ctactaataa 660
cagcagagtt accctaagac atacaatctg ctgcgtgtat gctaagcagg atccgaggga 720
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ccacaggctg gatgagtagg taacaagaaa catacagcat acatacaaca cacactaaag 840
tctaaagtac tatttgtcct taaaaaggaa actcatacat gatacaagcc ttcacggcat 900
tctgctacat gaacacgcac acacacacac acacacacac acacacacgc actgagaatc 960
tatgtatacc aggcacttag ggtactcaaa ttcagaaaca ggacagagaa tgggtgattgc 1020
catgg                                     1025

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<210> 13
<211> 256
<212> DNA
<213> Rattus norvegicus

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<400> 13
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aattcaagac attgttccac acaatgaaca atcgcacaca tgagaactgc acctagaatg 180
tccatcctag aatctccatc catccagtca aagtgtctgag ctactgact gaaggaaaca 240
tgacctgtgt tctaga                                     256

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<210> 14
<211> 579
<212> DNA
<213> Rattus norvegicus

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<400> 14
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aattcaagac attgttccac acaatgaaca atcgcacaca tgagaactgc acctagaatg 180
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tcattgtcct agagattgtc tgagattatt ctgctgagaa gcttacttca aactcttctc 480
actacttctc acttccagtg tccttgaatt aagaacagaa attgtaacta tgctatttcta 540
catcagattg acacaaccta cttctaagta cactattgc                                     579

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<210> 15
<211> 1017
<212> DNA
<213> Rattus norvegicus

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<210> 16  
<211> 1022  
<212> DNA  
<213> Homo sapiens

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tgaaccttct taacatcact gtcttgccag attaccgaca ctgtcacttg accaatactg 960
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tc 1022

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<210> 17  
<211> 348  
<212> DNA  
<213> Rattus norvegicus

<400> 17

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cgctagtgt aacgcgttc tgtacaacct aactcactgg caagaacaca gtgttgggcc 180
tttcgaccac tagaacaac ttttttcaat tgacagttgc agaattgtgg agtgtttta 240
cattgatctt ttgctaatagc agttagcagt atgttttgca tgtatgactt aataaatcct 300
tgaatcataa aaaaaaaaaa aaaaatgtct ttggaacttg aaaaaaaaa 348
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<210> 18

<211> 352

<212> DNA

<213> Homo sapiens

<400> 18

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acaccgctc ctgtgtcgt ttgcctattg atgttccttt gggctctgtga gggtctgtaa 120
actgtgctag tgctgacgat gttctgtaca acttaactca ctggcgagaa tacagcgtgg 180
gacccttcag ccactacaac agaatttttt aaattgacag ttgcagaatt gtggagtgtt 240
tttacattga tcttttgcta atgcaattag cattatgttt tgcattgatg acttaataaa 300
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<210> 19

<211> 484

<212> DNA

<213> Rattus norvegicus

<400> 19

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cagcagccca gtaagctgtg ccagaaggct gtaacagtag cggagccagt gacagcgcga 180
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accccaatga cagcatcaaa gcctagactg ggagcggcca gggcagcggc tgccatggtg 360
ttggagtttc ggggggcca ggggcagagc ccacgcacag gggccctcata gagcactgtg 420
cggggcccac tactatgtgc ggcagccagg ggtccctcca gccggaagcc atcaggatgt 480
gtgg 484
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<210> 20

<211> 161

<212> PRT

<213> Rattus norvegicus

<400> 20

Gly Ser Pro Ser Ala Leu Ala Asp Gln Thr Thr Glu Arg Gln Leu Leu



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Leu Trp Gly Cys Glu Asp Ile Ser Arg Leu Asp Ala Ala Gly Gly Leu			
35	40	45	
Gln Ser Leu Arg Val Thr Met Ala Thr His Pro Asp Gly Phe Arg Leu			
50	55	60	
Glu Gly Pro Leu Ala Ala Ala His Ser Ser Gly Pro Arg Thr Val Leu			
65	70	75	80
Tyr Glu Gly Pro Val Arg Gly Leu Cys Pro Leu Ala Pro Arg Asn Ser			
85	90	95	
Asn Thr Met Ala Ala Ala Ala Leu Ala Ala Pro Ser Leu Gly Phe Asp			
100	105	110	
Arg Val Ile Gly Val Leu Val Ala Asp Leu Ser Leu Thr Asp Met His			
115	120	125	
Val Val Asp Val Glu Leu Thr Gly Pro Pro Gly Pro Thr Gly Arg Ser			
130	135	140	
Phe Ala Val His Thr His Arg Glu Asn Pro Ala Gln Pro Gly Ala Val			
145	150	155	160

Thr

<210> 21  
 <211> 161  
 <212> PRT  
 <213> Caenorhabditis elegans

<400> 21

Gly Ser Pro Thr Cys Phe Ala Asn Gln Glu Leu Leu Glu Lys Leu Thr			
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20	25	30	
Leu Trp Gly Ala Asn Asp Ile Gln Lys Met Ala Asp Val Gly Ser Leu			
35	40	45	

Lys Gly Leu Thr Val Thr Met Ile Lys His Pro Thr Ser Phe Lys Leu  
 50 55 60  
 Gly Ser Pro Leu Phe Glu Ile Asn Glu Lys Ala Lys Leu Glu Glu Thr  
 65 70 75 80  
 Asn Glu Thr Val Leu Tyr Glu Gly Ser Val Arg Gly Leu Cys Pro Leu  
 85 90 95  
 Ala Pro Asn Asn Val Asn Thr Met Ala Gly Gly Ala Leu Ala Ala Ser  
 100 105 110  
 Asn Leu Gly Phe Asp Glu Val Lys Ala Lys Leu Ile Ser Asp Pro Lys  
 115 120 125  
 Met Thr Asp Trp His Val Val Glu Val Arg Val Glu Gly Asp Asp Gly  
 130 135 140  
 Phe Glu Val Ile Thr Arg Arg Asn Asn Pro Ala Lys Pro Gly Ala Val  
 145 150 155 160

Thr

<210> 22  
 <211> 1019  
 <212> DNA  
 <213> Rattus norvegicus

<400> 22  
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 agctgctgag acgctgtgca caagaccctg aaaggggagg cgggtgtcca gaatgtggaa 180  
 gttcagttgg agaaccagat ggtgttggtg cagaccactt tgcccagcca ggaggtgcaa 240  
 gcgctcctgg aaagcacagg gaggcaggct gtactcaagg gcatgggcag cagccaacta 300  
 aagaatctgg gagcagcagt ggccattatg gagggcagtg gcaccgtaca gggggtgggc 360  
 cgcttcctac agctgtcctc tgagctctgc ctgattgagg gaaccatcga cggcctggag 420  
 cctgggctgc atgggcttca tgtccatcag tatggggacc ttaccaagga ctgcagcagc 480  
 tgtggggacc attttaaccc tgatggagca tctcatgggg gtccctcagga cactgatcgg 540  
 caccggggag atctgggcaa tgttcacgct gaagctagtg gccgagctac cttccggata 600  
 gaggataaac agctgaaggt gtgggatgtg attggccgca gtctggttgt tgatgaggga 660  
 gaagatgacc tgggcccggg aggccatccc ttatccaagg tcacaggga ttctgggaag 720  
 aggttggcct gtggcatcat tgcacgctct gctggccttt tccagaatcc caagcagatc 780  
 tgctcctgtg atgggctcac tatctgggag gagcgaggcc ggcccattgc tggccaaggc 840  
 cgaaaggact cagcccaacc ccctgctcac ctctgaacag agcctcctgt caggttattc 900  
 agtcctccta gctgaacatc ttctgcaga gggagcctca agcccttgct tgtataggcc 960  
 taaagggcag ataggcattg ttgtatcctg agcaaattaa attgttactc tcatatggc 1019

<210> 23  
 <211> 878  
 <212> DNA  
 <213> Rattus norvegicus

<400> 23  
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 gttccacaag agggaaacctc gatgtggcta agctcaatgg ggattggttt tctattgtcg 180  
 tggcctctaa caaaagagaa aagatagaag agaatggcag catgagagtt tttatgcagc 240  
 acatcgatgt cttggagaat tccttaggct tcaagtccg tattaaggaa aatggagagt 300  
 gcagggaact atatttggtt gcctacaaaa cgccagagga tggcgaatat tttgttgagt 360  
 atgacggagg gaatacattt actatactta agacagacta tgacagatat gtcattgtttc 420  
 atctcattaa tttcaagaac ggggaaacct tccagctgat ggtgctctac ggcagaacaa 480  
 aggatctgag ttcagacatc aaggaaaagt ttgcaaaact atgtgaggcg catggaatca 540  
 ctagggacaa tatcattgat ctaaccaaga ctgatcgctg tctccaggcc cgaggatgaa 600  
 gaaaggcctg agcctccagt gctgagtggg gacttctcac caggactcta gcatcaccat 660  
 ttctgtcca tggagcatcc tgagacaaat tctgcgatct gatttccatc ctctgtcaca 720  
 gaaaagtgca atcctgggtc ctccagcatc ttccctaggt taccagagac aacacatcga 780  
 gaattaaaag ctttcttaaa tttctcttgg cccaccccat gatcattccg cacaaatata 840  
 ttgctcttgc agttcaataa atgattaccc ttgcactt 878

<210> 24  
 <211> 256  
 <212> DNA  
 <213> Rattus norvegicus

<400> 24  
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 ccagccacat tccattgatc atccagtatt tcatcttgaa gatgtttgct gagaagctgc 120  
 agaagggcat gctccagctc ctgcaggaca aggattcctg cagctggctc ctgaaggaaa 180  
 agagtgcacac cagtgcagaag aggagattcc tgaaggagcg gttggcaagg ctggcccaag 240  
 ctcagcgcag gctagc 256

<210> 25  
 <211> 84  
 <212> PRT  
 <213> Rattus norvegicus

<400> 25  
 Met Asp Glu Ile Phe Gln His Leu Asn Ala Tyr Arg Gln Glu Ala His  
 1 5 10 15  
 Asn Cys Ile Ser Ser His Ile Pro Leu Ile Ile Gln Tyr Phe Ile Leu

	20		25		30										
Lys	Met	Phe	Ala	Glu	Lys	Leu	Gln	Lys	Gly	Met	Leu	Gln	Leu	Leu	Gln
	35						40					45			
Asp	Lys	Asp	Ser	Cys	Ser	Trp	Leu	Leu	Lys	Glu	Lys	Ser	Asp	Thr	Ser
	50					55					60				
Glu	Lys	Arg	Arg	Phe	Leu	Lys	Glu	Arg	Leu	Ala	Arg	Leu	Ala	Gln	Ala
65					70					75				80	

Gln Arg Arg Leu

<210> 26  
 <211> 84  
 <212> PRT  
 <213> Rattus norvegicus

<400> 26															
Met	Asp	Glu	Ile	Phe	Gln	His	Leu	Asn	Ala	Tyr	Arg	Gln	Glu	Ala	His
1				5					10				15		
Asn	Cys	Ile	Ser	Ser	His	Ile	Pro	Leu	Ile	Ile	Gln	Tyr	Phe	Ile	Leu
			20					25					30		
Lys	Met	Phe	Ala	Glu	Lys	Leu	Gln	Lys	Gly	Met	Leu	Gln	Leu	Leu	Gln
	35						40					45			
Asp	Lys	Asp	Ser	Cys	Ser	Trp	Leu	Leu	Lys	Glu	Lys	Ser	Asp	Thr	Ser
	50					55					60				
Glu	Lys	Arg	Arg	Phe	Leu	Lys	Glu	Arg	Leu	Ala	Arg	Leu	Ala	Gln	Ala
65					70					75				80	

Gln Arg Arg Leu

<210> 27  
 <211> 368  
 <212> DNA  
 <213> Homo sapiens

<400> 27  
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 acctgtggca aggcaggctc ctggcaaacg gaagtgcaat tgtcggcaag agatgcggac 120

caccagctg ggccctgggc gcttccaaat gaccaggag gtggtctgcg acgaatgccc 180  
 taatgtcaaa ctagtgaatg aagaacgaac gctggaagta gaaatagagc ctgggggtgag 240  
 agacggcatg gagtaccctt ttattggaga aggtgagcct cacgtggatg gggagcctgg 300  
 agatttacgg ttccgaatca aagttgtcaa gcaccaata tttgaaagga gaggagatga 360  
 tttgtaca 368

<210> 28  
 <211> 121  
 <212> PRT  
 <213> Rattus norvegicus

<400> 28  
 Lys Val Thr Leu Glu Glu Val Tyr Ala Gly Asn Phe Val Glu Val Val  
 1 5 10 15  
 Arg Asn Lys Pro Val Ala Arg Gln Ala Pro Gly Lys Arg Lys Cys Asn  
 20 25 30  
 Cys Arg Gln Glu Met Arg Thr Thr Gln Leu Gly Pro Gly Arg Phe Gln  
 35 40 45  
 Met Thr Gln Glu Val Val Cys Asp Glu Cys Pro Asn Val Lys Leu Val  
 50 55 60  
 Asn Glu Glu Arg Thr Leu Glu Val Glu Ile Glu Pro Gly Val Arg Asp  
 65 70 75 80  
 Gly Met Glu Tyr Pro Phe Ile Gly Glu Gly Glu Pro His Val Asp Gly  
 85 90 95  
 Glu Pro Gly Asp Leu Arg Phe Arg Ile Lys Val Val Lys His Arg Ile  
 100 105 110  
 Phe Glu Arg Arg Gly Asp Asp Leu Tyr  
 115 120

<210> 29  
 <211> 121  
 <212> PRT  
 <213> Homo sapiens

<400> 29  
 Glu Val Thr Leu Glu Glu Val Tyr Ala Gly Asn Phe Val Glu Val Val  
 1 5 10 15  
 Arg Asn Lys Pro Val Ala Arg Gln Ala Pro Gly Lys Arg Lys Cys Asn

20	25	30
Cys Arg Gln Glu Met Arg Thr Thr Gln Leu Gly Pro Gly Arg Phe Gln		
35	40	45
Met Thr Gln Glu Val Val Cys Asp Glu Cys Pro Asn Val Lys Leu Val		
50	55	60
Asn Glu Glu Arg Thr Leu Glu Val Glu Ile Glu Pro Gly Val Arg Asp		
65	70	75
Gly Met Glu Tyr Pro Phe Ile Gly Glu Gly Glu Pro His Val Asp Gly		
85	90	95
Glu Pro Gly Asp Leu Arg Phe Arg Ile Lys Val Val Lys His Pro Ile		
100	105	110
Phe Glu Arg Arg Gly Asp Asp Leu Tyr		
115	120	

<210> 30  
 <211> 184  
 <212> DNA  
 <213> Rattus norvegicus

<400> 30  
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 tcttgggagt gtggatgatg ctcaattctg tcataatggc attcagtact aattttataa 120  
 gtgcatcttg tgtgaaactc aataaattca attttataat ctttttttaa aaaaaaaaaa 180  
 aaaa 184

<210> 31  
 <211> 183  
 <212> DNA  
 <213> Mus musculus

<400> 31  
 gctctctctg ctaatgctgc tttgtgtgat cttcagtgaa cctttgactc atctcatatc 60  
 cctgggcact cggctagtg agcgttttgt catcatgtac agtagagaac tagttgaatt 120  
 aaccatgtga tgttaactat tattaataaa ttttaacttt ttttttcaaa aaaaaaaaaa 180  
 aaa 183

<210> 32  
 <211> 184  
 <212> DNA

<213> Mus musculus

<400> 32

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gctctctctg ctaatgctgc tttgtgtgat cttcagtga cctttgactc atctcatatc 60
cctggggcact cggctcagtg agcgttttgt catcatgtac agtagagaac tagttgaatt 120
aaccatgtga tgtaactat tattaataaa tttaacttt ttttttcaa aaaaaaaaaa 180
aaaa                                             184
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<210> 33

<211> 42

<212> PRT

<213> Rattus norvegicus

<220>

<221> VARIANT

<222> (31)

<223> Wherein Xaa is any amino acid as described in the  
specification

<400> 33

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Tyr Lys Ile Ser Thr Glu Cys His Tyr Asp Arg Ser Glu His His Pro
  1              5              10              15

His Ser Gln Glu His Leu Gln Arg Lys Ser Ile Phe Arg Glu Xaa His
      20              25              30

Arg Asn Arg Lys Ser Lys Arg Thr Lys Arg
      35              40
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<210> 34

<211> 48

<212> PRT

<213> Drosophila melanogaster

<400> 34

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Tyr Lys Val His Ser Lys Val His Lys Ala Arg Met Asp His Ser Pro
  1              5              10              15

Arg Ser Lys Asp Arg Lys Asp Arg Lys Gly Arg Lys Ala His Ser Lys
      20              25              30

Ile His Lys Asp Tyr Ser Arg Asn Arg Lys Asp His Arg Val Arg Lys
      35              40              45
```

<210> 35  
 <211> 382  
 <212> DNA  
 <213> Rattus norvegicus

<400> 35  
 gaattccacg gagccaagaa gcccattggc ctatgctgca tcgctcctgt cctcgcagcc 60  
 aaagtgatca aaggtgtgga ggtcaccgtg ggccatgagc aagaggaggg gggcaagtgg 120  
 ccatatgctg gaaccgcgga agccgtcaaa gccctgggtg ccaagcactg tgtgaagggt 180  
 gtgaccgaag ctacgctcga ccagaaaaac aaggtgggtc caccgccggc cttcatgtgt 240  
 gagaccgaac tccaccacat ccacgacggg attggggcca tggatgaaga ggtgctggaa 300  
 ctacgaggaa agtaacacca ccagcaccac gcttggcctc cgtcgtcgt gtggcacgct 360  
 cagcctgtgt gctccggtca gc 382

<210> 36  
 <211> 385  
 <212> DNA  
 <213> Homo sapiens

<400> 36  
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 aaggtgctca gaggcgtcga ggtgactgtg ggccacgagc aggaggaagg tggcaagtgg 120  
 ccttatgccg ggaccgcaga ggccatcaag gccctgggtg ccaagcactg cgtgaaggaa 180  
 gtggctgaag ctacgctgga ccagaaaaac aaggtgggtc caccgccagg cttcatgtgc 240  
 gagacggcac tccactacat ccatgatggg atcggagcca tggatgaggaa ggtgctggaa 300  
 ctactggaa agtgacgcgc atggacgggg cccagctagg cggcaggact tggcctcacc 360  
 ctctggctga ggagctgtcg gctgc 385

<210> 37  
 <211> 104  
 <212> PRT  
 <213> Rattus norvegicus

<400> 37  
 Glu Phe His Gly Ala Lys Lys Pro Ile Gly Leu Cys Cys Ile Ala Pro  
 1 5 10 15  
 Val Leu Ala Ala Lys Val Ile Lys Gly Val Glu Val Thr Val Gly His  
 20 25 30  
 Glu Gln Glu Glu Gly Gly Lys Trp Pro Tyr Ala Gly Thr Ala Glu Ala  
 35 40 45  
 Val Lys Ala Leu Gly Ala Lys His Cys Val Lys Gly Val Thr Glu Ala



50                      55                      60  
 His Val Asp Gln Lys Asn Lys Val Val Thr Thr Pro Ala Phe Met Cys  
 65                      70                      75                      80  
 Glu Thr Glu Leu His His Ile His Asp Gly Ile Gly Ala Met Val Lys  
                     85                      90                      95  
 Lys Val Leu Glu Leu Thr Gly Lys  
                     100

<210> 38  
 <211> 104  
 <212> PRT  
 <213> Rattus norvegicus

<400> 38  
 Glu Phe His Gln Ala Gly Lys Pro Ile Gly Leu Cys Cys Ile Ala Pro  
 1                      5                      10                      15  
 Val Leu Ala Ala Lys Val Leu Arg Gly Val Glu Val Thr Val Gly His  
                     20                      25                      30  
 Glu Gln Glu Glu Gly Gly Lys Trp Pro Tyr Ala Gly Thr Ala Glu Ala  
                     35                      40                      45  
 Ile Lys Ala Leu Gly Ala Lys His Cys Val Lys Glu Val Val Glu Ala  
                     50                      55                      60  
 His Val Asp Gln Lys Asn Lys Val Val Thr Thr Pro Ala Phe Met Cys  
 65                      70                      75                      80  
 Glu Thr Ala Leu His Tyr Ile His Asp Gly Ile Gly Ala Met Val Arg  
                     85                      90                      95  
 Lys Val Leu Glu Leu Thr Gly Lys  
                     100

<210> 39  
 <211> 661  
 <212> DNA  
 <213> Rattus norvegicus

<400> 39  
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 tttctgattt caaatttcta ttataattct ccagtaatca aagcagtggc gttggcatga 120

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aggcagacag aggtcatgga agagaccagg ctcagaaaca gccccacat gcacagcggg 180
atgttttccc accaaggga acatgcaaag ccaggtatcc acatgggtag agtagaaagt 240
cagaccttac atctcacaca caaatgaact caaatatac cagagagcaa agctaagagc 300
taaaatcaag tttcctaggg caagctgtag taggctccct tgggtgggtt aatgcttttg 360
tggatgtgac taccaaaaat tcaaccagag ccaacgaccc aactattaat gggcagtggg 420
cctaaagaga tttcttcaaa cgatatataa agaaggccac caagcatata aaacatgtga 480
catcagtagt cagagagatg ggaagcagaa gcactagcag atcttaacac ctactagaac 540
agccactaaa aaagagtaag actcacaagg acatgggcac ttctaattct tgtgactgc 600
tgccaggaca tacaatagtg tggtcactat ggagactacg gcagtgccta ctaataacag 660
c

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<210> 40

<211> 661

<212> DNA

<213> Rattus norvegicus

<400> 40

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atttcaaatt tttattatag aacactttct gatttcaaat ttttattaca gaacaaacat 60
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aggcagacag aggtcatgga agagaccagg ctcagaaaca gccccacat gcacagcggg 180
atgttttccc accaaggga acatgcaaag ccaggtatcc acatgggtag agtagaaagt 240
cagaccttac atctcacaca caaatgaact caaatatac cagagagcaa agctaagagc 300
taaaatcaag tttcctaggg caagctgtag taggctccct tgggtgggtt aatgcttttg 360
tggatgtgac taccaaaaat tcaaccagag ccaacgaccc aactattaat gggcagtggg 420
cctaaagaga tttcttcaaa cgatatataa agaaggccac caagcatata aaacatgtga 480
catcagtagt cagagagatg ggaagcagaa gcactagcag atcttaacac ctactagaac 540
agccactaaa aaagagtaag actcacaagg acatgggcac ttctaattct tgtgactgc 600
tgccaggaca tacaatagtg tggtcactat ggagactacg gcagtgccta ctaataacag 660
c

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<210> 41

<211> 893

<212> DNA

<213> Rattus norvegicus

<400> 41

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tccccgctga gttcatcacc agggacaggt gacctgagct gcccctggag cccagctccc 60
atttccttct gggtctggcc gatctcttcg ttatgagctg gctgctgggt tacgtggacc 120
ccacagagcc cagctttgtg gcggctgtgc tcaccattgt gttcaatcca ctcttctgga 180
atgtggtagc aaggtgggag cagagaactc gcaagctgag cagagccttc gggccccctt 240
acctagcctg ctattccctg ggcagcatca tcctgcttct gaacatcctc cgctccact 300
gcttcacaca ggccatgatg agccagccca agatggaggg cctggatagc cacaccatct 360
acttctggg ccttgactc ctgggctggg gactcgtgtt tgtgctctcc agcttctatg 420
cactgggggt cactgggacc tttctaggtg actactttgg gatcctcaag gagtccagag 480
tgaccacatt tcccttcagc gtgctggaca accccatgta ctggggaagt acagccaact 540
acctaggctg ggcacttatg cacgccagcc ctacaggcct gctgttgacg gtgctgggtg 600

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cactcgtcta cgtggttget ctctgtttg aagagccctt cactgcgag atctaccggc 660  
 ggaaagccac caggttgac aaaaggagct gacagggcca tgagggacct ttggaaagcc 720  
 ggattgcctc ccggtgacc caagcaacaa cccttctcgg ggagagcagc gctggccatt 780  
 gtacctgtgc cttggaaacc agtcatgggg gtgctcaggc attatgtcat gtgactgctg 840  
 agacccccat cccaccaat ccctgacaca ctaataaagg ctttgtgacc tcc 893

<210> 42

<211> 1131

<212> DNA

<213> Rattus norvegicus

<400> 42

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 cagatcctgt gcgtggggct ggtggtgctg gacatcatca atgtggtgga caaataccca 120  
 gaggaagaca cggatcgag gtgcctatcc cagagatggc agcgtggagg caacgcgtcc 180  
 aactcctgca ctgtgctttc cttgctcgga gcccgctgtg ccttcatggg ctcgctggcc 240  
 catggccatg ttgccgaact cctggtggcc gacttcaggc ggaggggtgt ggatgtgtct 300  
 caagtggcct ggcagagcca gggagatacc cttgctcct gctgcatcgt caacaactcc 360  
 aatggctccc gtaccattat tctctacgac acgaacctgc cagatgtgtc tgctaaggac 420  
 tttgagaagg tcgatctgac ccggttcaag tggatccaca ttgagggccg gaatgcatcg 480  
 gaacaggtaa agatgttaca gcgatagaa cagtacaatg ccacgcagcc tctgcagcag 540  
 aaggtccggg tgtccgtgga gatagagaag ccccgagagg aactcttcca gctgttcggc 600  
 tatggagagg tgggtgttgt cagcaaagat gtggccaagc acctgggggt ccggtcagca 660  
 ggggaggccc tgaagggtt gtacagtcgt gtgaagaaag gggctacgct catctgtgcc 720  
 tgggctgagg agggagccga tgccctgggc cccgacggcc agctgctcca ctcagatgcc 780  
 tccccaccac cccgagtagt agacactctc ggggctggag acaccttcaa tgctctgtc 840  
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 gctggcaaga agtgtggctt gcaggggtt gatggcattg tgtgagagat gagcgggtggg 960  
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 atccagcctg gcgtctggct gccagttcc ctgggccagt gtaggctgtg gaacgggtct 1080  
 ttctgtctct tctctgcaga cacctggagc aaataaatct tcccctgagc c 1131

<210> 43

<211> 1994

<212> DNA

<213> Rattus norvegicus

<400> 43

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 accgctcac ctgctccccg cagcccagca gaggttttct acaatccctc ctgctcccct 180  
 ggccaaaact gatacatggc caaaagatgt gggcatcctt gccctggagg tctactttcc 240  
 agcccaatat gtggaccaaa ctgacctgga gaagttcaac aatgtggaag cagggaagta 300  
 cacagtgggc ttgggcccaga cccgtatggg cttctgttcg gtccaggagg acatcaactc 360  
 cttgtgcctc acagtgggtg agaggctgat ggaacgcaca aagctgccat gggatgccgt 420  
 aggccgcctg gaagtgggca cggaaaccat cattgacaag tccaaggctg tcaagacagt 480

gctcatggag	ctcttccagg	attcaggcaa	cactgacatc	gagggcatag	ataccaccaa	540
cgctgctat	ggtggcactg	cctccctctt	caacgctgcc	aactggatgg	agtcacgcta	600
ctgggatggt	cgctatgccc	tgggtggtctg	tggtgatata	gcagtctacc	caagtggtaa	660
cccccgcccc	acaggtggtg	ccggggctgt	ggcaatgctg	attgggcca	aggccccgct	720
agtcctggaa	caagggctga	ggggaacca	catggagaac	gcctatgact	tctacaaacc	780
aaacttggcc	tcagagtatc	cactggtgga	tgggaagctg	tctatccagt	gctacctgcg	840
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tggaaacaac	cagcctttca	ccctcgatga	cgtgcaatat	atgatcttcc	acacaccctt	960
ttgcaagatg	gtccagaaat	ccctagctcg	gctgatgttc	aatgacttcc	tgtcatctag	1020
cagtgacaag	cagaacaact	tatacaagg	tctagaggcc	ttcaagggtc	taaagctgga	1080
agaaacctac	accaacaagg	atgttgacaa	ggctctgctg	aaggcctccc	tggacatgtt	1140
caacaagaaa	accaaggcct	ccctttacct	ctccacaaac	aatgggaaca	tgtacacctc	1200
gtccctctac	gggtgcctgg	cctcacttct	ctcccaccac	tctgccaag	aattggccgg	1260
ctccaggatt	ggagccttct	cctacggctc	aggcttagca	gcaagtttct	tctcatttcg	1320
agtgtccaag	gacgcttccc	caggttcccc	tctggagaag	ctggtgtcta	gtgtgtcaga	1380
tctgccc aaa	cgtctagact	cccggagacg	catgtcccct	gaggaattca	cagaaataat	1440
gaatcagaga	gagcaatttt	accacaaggt	gaacttctct	ccccctggtg	acacaagcaa	1500
cctcttccca	ggcacttggg	accttgaacg	agtggatgag	atgcaccgca	gaaaatatgc	1560
ccggcgctcc	gtctaaggag	accaatccat	acaaccattc	ccgggggaaa	gaatgtgagc	1620
agagccgtta	cccaaacggc	ttccacttaa	aattccaccc	acagcagtga	acggtgaata	1680
gacacagcga	ccccatagga	tctgctccgc	ggtgaagggc	ctccctctgt	ggatcctggg	1740
tgacctcccc	tgaagcagtg	agcaccacag	gttctgctgt	ggaccagagc	ccccctgtgg	1800
agagggagaa	agaaagggga	gccgctgacc	tgcagggata	cagaccttcc	ccacagcctg	1860
gcagccgccc	gtttgttgca	gcttattatc	agactgtggg	ctatcatagt	tcatgctcgt	1920
ttcttaaagt	ttcccagaaa	tttctaaaat	tttgtatcta	aacttttaat	atggcgatta	1980
aaaggagaga	agga					1994

<210> 44

<211> 1850

<212> DNA

<213> Rattus norvegicus

<400> 44

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<210> 45

<211> 993

<212> DNA

<213> Rattus norvegicus

<400> 45

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<210> 46

<211> 5001

<212> DNA

<213> Rattus norvegicus

<400> 46

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<212> DNA

<213> *Rattus norvegicus*

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<211> 1884

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